REMARKS

Applicant acknowledges that the outstanding Office Action dated August 9, 2011 has been made final. Accordingly, a Request for Continued Examination has been submitted concurrently herewith, and further consideration of this application in view of the foregoing amendments, and the remarks set forth below is respectfully requested.

The Advisory Action mailed September 26, 2011 indicates that the Amendment submitted on September 9, 2011 has been considered, but does not place the application in condition for allowance, on the grounds that the disclosure supports the only proposition that that starter battery supplies power during fuel cell start up, and not that it has an output "sufficient only to supply electrical power" to components necessary to start the fuel cell itself. In particular, the Advisory Action notes that the proposition that the starter battery only supplies power during the fuel cell starting process, and the further proposition that the starter battery output is sufficient only to supply power during starting are two different concepts, because a starter battery that only supplies power to the fuel cell during the start up process may have an output energy greater than the energy required to initiate all the components during the fuel cell start up process. Accordingly, the Advisory Action further indicates that the Applicant should amend the claims to clarify that the output power of the battery is no more than 1.5 kW for less than five seconds. By the foregoing amendment, Claim 1 has been amended in the manner suggested by the Examiner.

Applicant respectfully submits that Claim 1 as amended is clearly supported by, *inter alia*, by paragraph [0029] of the disclosure, which reads as follows:

> "As explained above, the fuel cell stack is able to generate an output power of this level [as described in paragraph [0028]] already during the start-up process, which makes it possible to use a smaller battery. A starter battery that needs only to be able to start the fuel cell stack requires an output power of not more than 1.5 kW for less than five seconds, whereas a battery that must also provide power during a cold-start process has to be able to provide a power output of at least approximately 6 kW for up to 60 seconds. A 1.5 kW battery is significantly smaller and less expensive than a 6 kW battery, and further evidence is an advantage of this invention."

Applicant respectfully submits, therefore, that Claim 1 as amended is clearly supported by the specification; and reconsideration and withdrawal of the rejection under 35 USC §112, first paragraph is respectfully requested.

Further, Applicant respectfully submits that the foregoing feature of the invention, by virtue of which it is possible to use a smaller battery than previously thought necessary, is not taught or suggested by any of the cited references. In this regard, Applicant refers to and hereby incorporates by reference, the comments contained in the Remarks filed with the Amendment dated May 2, 2011, at pages 6-10. In particular, Applicant respectfully submits that neither the cited references nor any combination thereof teaches or suggests that it is possible to reduce the size of the battery used for the purpose of starting a fuel cell to such an extent that it is "only able to supply electrical power to start the fuel cell stack, until the fuel

cell itself generates electrical power", or that the output capacity of the starter battery is "no greater than 1.5 kW for less than five seconds", as recited in Claim 1 as amended.

Claim 16, on the other hand, defines a method of starting a fuel cell system at subzero temperatures, wherein the fuel cell system has a fuel cell stack upstream of which is connected a heating device to heat a cooling agent to be circulated by a coolant pump and which is equipped with a starter battery, and wherein an output power generated by the fuel cell stack is sufficiently large to operate the heating device and the coolant pump. More particularly, Claim 16 recites a step of supplying power from the starter battery to auxiliaries necessary for the supply of reactants to the fuel cell stack, and interrupting such initial power feed when the fuel cell stack itself generates electrical power. Thereafter, Claim 16 recites a step of using the power provided by the fuel cell stack to operate the heating device for heating the cooling agent as well as the coolant pump, and circulating the cooling agent between the fuel cell stack and the heating device. The heating device is then shut off when the fuel cell stack has reached a preset temperature that is greater than its original temperature.

Applicant respectfully submits that Rock et al contains no disclosure which teaches or suggests that the electrical power required for supplying sufficient oxygen into the hydrogen-rich feed stream, for operating the combustor to heat the coolant, and for operating the coolant pump, is or may be drawn from the fuel cell stack itself. Rather, at Column 3, lines 2-5, Rock et al indicates simply that the electrical current drawn from the stack may be used "to assist in completing the heating of the fuel cell up to its normal operating temperature".

Accordingly, the system in Rock et al must include a battery with an output capacity sufficiently large to operate the oxygen supply, the internal resistive heating of the stack, the heating of the coolant, and the circulation of the coolant to heat the fuel cell stack up to normal operating temperatures. The present invention eliminates the need for such a battery.

Reiser et al, on the other hand, discloses that melting of the coolant may be started by a heater (45) powered by a battery (80), or by circulating externally heated glycol (83). (See Abstract.) Moreover, in paragraph [0032], Reiser et al indicates that the glycol solution is selectively utilized in a cabin heater, and that, during start-up when at least a portion of the cell stack assembly (19) may be at a temperature below freezing, the glycol solution is not circulated through the heat exchange tubes (31). In contrast, the present invention, as defined in Claim 16 "us[es] the power provided by the fuel cell stack to operate the heating device for heating the cooling agent as well as the coolant pump, and circulating the cooling agent between the fuel cell stack and the heating device".

Applicant respectfully submits that the latter feature of the invention is not taught by Reiser et al, that the combination of Rock et al and Reiser et al therefore does not yield the method according to Claim 16.

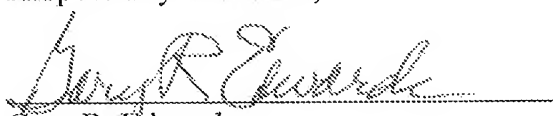
Finally, the Yang reference teaches that power needed during start-up at low temperatures must be originated from a battery. While it also indicates that the electricity drawn from the fuel cell stack can be used to recharge the battery, there is no teaching or suggestion of utilizing power generated from the fuel cell system itself in order to operate the heating device and the cooling pump during a start-up time at ambient temperature that is

below a temperature of which the fuel cell stack itself is capable of sustaining a normal operation.

In light of the foregoing amendments and remarks, this application should be in condition for allowance, and early passage of this case to issue is respectfully requested. If there are any questions regarding this response or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323, Docket No. 102063.56866US.

Respectfully submitted,



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